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Description of EP0358279

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Mechanism for drying dishes in a household dishwasher

The invention refers to a mechanism for drying dishes in a household dishwasher or a such, heated in which the rinsing water becomes by an heater, preferably an electric instantaneous water heater, arranged outside of the rinsing container, using a to a large extent closed drying system, with that air from the rinsing container over a drying apparatus regeneratable by heating and this back into the rinsing container circulated.

The dish inserted into a dishwasher becomes after conclusion of the cleaning operation in a so-called. Clear rinsing process by the circulated rinsing water on approx. 60< o> C to 70< o> C heated. After conclusion of this heating procedure clear detergent becomes added and distributed on the dish. Afterwards the hot rinsing water is evacuated and thus the drying procedure introduced. Generally the walls of the dishwasher are somewhat cooler as the rinsed dish, so that waters at these walls condensed and so that from the dish abdunstet.

Not in all cases made with this type of the drying process the drying procedure uniform and not in all cases rapid enough. In particular with dishes with small heat capacity frequent drop remains clinging, which not only to unpleasant stains, but also to corrosions cause to give to be able. One has therefore tried to improve the drying procedure. So the precipitation at this cooled surface can become substantially improved by cooling of a wall part with a water sprinkling mechanism. Also by rolling the air over, e.g. over a chilled water-flat let in into the container, the drying procedure can be likewise improved, as by rolling the air over outside of the rinsing container arranged Trockeneinrichtungen. Auch the discharge of the air from the container, satisfied with water vapor, promotes the drying process, has however the disadvantage that the moisture arrives at the surrounding furniture and into the spaces.

To the avoidance of the disadvantages preferred one closed systems specified last. Here already proposed became to use latent heat storages by which the air cooled satisfied with water vapor is dehumidified and thereby.

In the DE-OS 20 16 831 a dishwasher described with which to a wall of the rinsing container with its interior by a lockable opening of connected containers to the receptacle of a drying agent mounted is, moisture is to be taken up and with heating again delivered is able. This known embodiment has the disadvantage that to the one the container with the drying agent is to be separated only heavy one opposite the interior of the rinsing container and on the other hand an additional heating system required is, which must be switched on to the appropriate time, so that is sufficient dried at the time of the conclusion of the clear rinsing procedure the drying agent.

The invention is the basis the object to create a mechanism for drying from dishes to with which the drying procedure becomes rapid and performed without special additional effort. According to the invention becomes this during a mechanism that initially mentioned type by the fact achieved that the drying apparatus consists of desiccants standing with the heater in thermal contact.

As a result of the connection of the drying container with for the heating of the rinsing water anyway present heater an immediate ready status of the drying apparatus arises after expiration of the rinsing procedure. In the simplest case the drying container with stones from sound or such can. filled its, like it e.g. hei hydraulic cultures use find. Improves characteristics, i.e. , desiccants, which adsorb with its molecular structures moisture, have a higher moisture absorption with smaller volume. Preferably zeolites become inserted as desiccants, as they are in the chemistry lexicon of Römpp 1977 described. So that the desiccant is manageable good, it is favourable to use a granulates-like bulk material. The connection of the drying container with the rinsing container made convenient over air circulations, into which also a fan can be incorporated.

If the desiccant becomes at least partial than jacket around the heating elements of the heater placed, then these parts replace the actual otherwise conventional thermal shield-flat. The heating elements reach surface temperatures to 250< o> C, so that the desiccants in the drying container become during each heating process safe heated and thus dried. A particularly good constructional design plans a drying container, which is placed as double walled hollow cylinders formed and like that around the heater of the instantaneous water heater. The drying container can consist simple assembly of reasons also of two half shells. In and outlet ports of the container can be diagonal opposite arranged, so that an uniform flow of the drying container results. Cold bridges, those if necessary. also as air conducting surfaces formed are, can in the drying container the deposition of the moisture from the air improve.

Since the air circulations in the rinsing container convenient is to flow on the one hand above and on the other hand in the bottom of the rinsing container and be kept away the air humidity during the rinsing procedure from the dryer, it is favourable to provide the air circulation with a closure which interrupts the Luftzirkulation during rinsing. If a fan for the Luftzirkulation is provided, then the bottom intended blow-out port can be provided with a closure take offable by the air flow, e.g. cap-like the outlet port takes off.

On the basis the drawing an embodiment of the invention is described. Show:

Fig. 1 in schematic illustration a dishwasher with the mechanism after the invention and

Fig. 2 in schematic illustration the formation and allocation of the drying container to the instantaneous water heater.

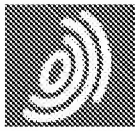
A rinsing container 1 is bottom 2 provided with a sump, pressed of which from the rinsing water becomes over the instantaneous water heater 3 of a pump 4 in the not drawn distributor and spraying system of the Spülers. Around the instantaneous water heater 3, existing from the flow pipe 5 and the tubing heating element 6, is a double walled hollow cylinder 7 as drying container placed, which is filled with a desiccant. Over the terminal 8 the drying container 7 with a blow-out port flowing in the container 1 is 9 connected, which is provided with a cap-like cover 10. Over the terminal 11 the drying container is 7 12 connected with the air circulation, into which a fan 13 is eingeschleift. The opening 14 of the air circulation 12 ends cover-laterally in the rinsing container 1.

After conclusion of a Aufhei of zvorganges, with that the tubing heating element 6 also the drying container 7 on temperatures of e.g. more the rinsing water< heats>, does not become than 100 o C by a not drawn sewage pump from the container 1 remote. Now if the fan 13 is switched on, then the strong feuchtigkeitshaltige air becomes from the rinsing container over the opening 14 aspirated and 7 pressed by the fan 13 into the drying container. In the drying container 7 stored desiccants the moisture takes up and those comparatively dry air becomes over the terminal 8 and the blow-out port 9 to the container 1 back-pressed. The air takes up moisture here again and delivers it in the circuit to the desiccant again.

With a mechanism after the invention effort becomes achieved with small that the drying procedure without impairment of the environment can become rapid the conclusion brought.

With the next start-up of the dishwasher already the desiccant in the drying container becomes again heated and the moisture over the air circulation into the rinsing container returned in the rinsing process, thus with the heating of the cleaning fleet.

To the better heat distribution and even to the even deposition of the moisture cold bridges and air conducting surfaces can be inserted into the double walled hollow body.



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Claims of EP0358279

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1. Mechanism for drying dishes in a household dishwasher or a such. , in that the rinsing water by an heater, preferably an electric instantaneous water heater, arranged outside of the rinsing container, heated becomes, using a to a large extent closed drying system, with that air from the rinsing container over by heating regeneratable a drying apparatus and of this back into the rinsing container circulated, characterised in that the drying apparatus from with the heater in thermal contact standing drying container exists.
2. Mechanism according to claim 1, characterised in that of the drying containers with the moisture adsorbent desiccants filled is.
3. Mechanism according to claim 2, characterised in that as desiccant a zeolite inserted is.
4. Einrichtung according to claim 1 to 3, characterised in that the desiccant as granular bulk material into the drying container introduced is.
5. Mechanism according to claim 1, characterised in that of the drying containers than jacket around the heating elements of the heater placed is at least partial.
6. Mechanism according to claim 1 to 5, characterised in that of the drying containers as double walled hollow cylinders formed is.
7. Mechanism according to claim 6, characterised in that the inlet and the outlet port to the terminal to the closed air circulation system diagonal opposite arranged are.
8. Mechanism according to claim 7, characterised in that those the heater directed inner wall also into the desiccant rising up cold bridges is provided.
9. Mechanism according to claim 8, characterised in that the cold bridges as air conducting surfaces formed are.
10. Mechanism according to claim 1 to 9, characterised in that the air circulation is provided with a closure, which interrupts the circulation during rinsing.
11. Mechanism according to claim 1 to 10 using a fan for the Luftzirkulation, characterised in that the blow-out port is provided with a closure take offable by the air flow.
12. Mechanism according to claim 11, characterised in that the closure cap-like formed is.

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